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DIRECTORATE OF INTELLIGENCE

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Soviet Statistical Falsification at the Enterprise Level
The Impact on CIA Measures of the Soviet Economy

Summary

The CIA's evaluation of Soviet economic performance depends heavily on published Soviet statistics of physical output. Most Western experts believe that Soviet central authorities do not deliberately publish false statistics but choose, instead, to withhold publication of data they consider embarrassing or sensitive on national security grounds. If field-level statistical falsification exists, however, then Soviet central authorities unwittingly could publish false statistics. Soviet central authorities seek to minimize falsification and the level of oversight seems sufficient to keep most enterprises from reporting non-existent output. The survey of Soviet press accounts indicates that most report padding involves misrepresenting the mix and quantity of materials actually needed to produce a good, thus the impact of distortion in Soviet statistical reporting from the field is mainly on measures of efficiency--not the amount--of production. Thus, because the CIA uses primarily physical output series to measure aggregate output of the Soviet economy, we believe the effect of enterprise report padding on the CIA's measurement of Soviet growth is minimal. Furthermore, because of the high level of aggregation involved in their calculation, CIA indexes of Soviet factor productivity do not appear to be seriously impaired by the lesser degree of reliability of cost and input statistics. [redacted]

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This memorandum was prepared by [redacted] the Economic Performance Division, National Issues Group of the Office of Soviet Analysis. Comments and queries may be addressed to Chief Economic Performance Division [redacted]

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Introduction

CIA's measurement of Soviet economic performance depends heavily on published Soviet statistics.¹ Most Western experts, in turn, believe that the Soviet central authorities do not deliberately publish false statistics.² Instead--the experts agree--the regime withholds publication of statistics that are security-related or show Soviet economic performance in a poor light.³ However, the Central Statistical Administration (CSA) itself could be the victim of falsification of statistics reported by enterprises to their superior organizations and ultimately transmitted to CSA. [REDACTED]

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¹ CIA measurement of aggregate economic activity in the USSR includes, in addition to indexes for GNP, indexes for industrial production, agricultural output, consumption, and factor productivity. The discussion below is applicable to all of these, but the focus is on GNP. [REDACTED]

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² Soviet economic statistics are based on different accounting concepts and are compiled and released by Soviet authorities in support of their own goals. Soviet statistics are often flawed not by lack of accuracy but by lack of relevance. In Soviet Economic Statistics, Trembl and Hardt, eds., twenty Western experts on Soviet statistics discuss the differences of definition and coverage between Soviet and Western statistical factors for a wide range of Soviet economic statistics. As Stanley Cohn expressed it, in his contribution to the volume, "the Western specialist does not completely reject official estimates, but takes them as a base upon which to build a more valid structure." [REDACTED]

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³ An exception to the assumption that Soviet statistics are not deliberately distorted is the official Soviet figure for defense spending. In light of what is independently known of the Soviet defense effort, that figure has been consistently much lower than is credible by any acceptable Western definition of defense spending. However, since the Soviets have never disclosed the contents of their defense spending total, the published figure can be considered as undefined rather than false. [REDACTED]

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Sources and Methodology

This paper relies on Soviet press accounts and emigree interviews to assess the impact of enterprise level statistical distortion. The largely anecdotal press reports give neither a complete nor an unbiased picture of statistical distortion by enterprises. Soviet press accounts of known instances of distortion--in the interests of discouraging dishonest statistical reporting--will be highly selective, emphasizing unsuccessful attempts and the penalties imposed on the perpetrators. The press usually gives few details on the techniques of distortion and offers biased and limited explanations of the motivation of those who engage in distortion. Emigre reporting is a useful supplement to press accounts. Though generally more detailed than press reporting, only a limited volume of such reporting is available because of the small number of emigres with knowledge of enterprise-level statistical falsification.⁴

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Nevertheless, both press and emigre reports together enable us to draw inferences about likely statistical reporting behavior by enterprise managers in light of prospects for rewards and punishments in the Soviet system. On the basis of these inferences, we categorize the various types of economic statistics that enterprises pass on to the central authorities as either likely or unlikely to be misreported. We also estimate whether misrepresentation of each type of statistic is likely to

⁴ Only nine emigre debriefs were relevant to this subject.

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be major or minor, in order to gauge the effect on CIA measures of Soviet economic aggregates. [REDACTED]

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Reasons for Soviet Concern

Soviet leaders are concerned about report distortion for several reasons.⁵ First, it can clearly lead to an incorrect assessment of economic performance and capabilities and thus undermine effective economic planning and administration. Second, it can be financially expensive to the state, since report distortion is often committed to acquire or increase bonuses. Third, it is seen as damaging to the work ethic of Soviet employees, who see their colleagues getting rich "at the stroke of a pen" instead of through hard work. Soviet officials also are disturbed by falsification because it can be a sign that other serious crime--such as theft or misappropriation of state property--has been committed. [REDACTED]

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Motivation for Statistical Distortion

Although Soviet press accounts have emphasized the role of greed in over-reporting, avarice is not the only explanation. Some managers will pad reports to facilitate the functioning of their factories or to preserve and protect their own careers. For example, if delivered inputs did not arrive in the correct assortment to produce planned outputs, an otherwise honest manager might distort a few reports to generate cash to acquire

⁵ The high level of official concern was quite evident this April when Izvestiya and Sotsialisticheskaya Industriya carried accounts of the USSR Prosecutor's Collegium. [REDACTED]

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those supplies necessary to fulfill his output plan.⁶ Because multiple--often contradictory--commands or plan goals are not uncommon, managers may falsify statistics relating to some of them to give the appearance of meeting all of these targets . The pervasive shortages of quality inputs and the criteria used to evaluate economic performance increases the likelihood that some statistical manipulation will occur so that the overall output plan will be fulfilled. [REDACTED]

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Soviet press accounts imply that report padding often is also prompted by the shortage of skilled and/or competent workers in Soviet industry. Managers often will distribute bonuses--acquired illegally by report padding--to workers who are in demand by other enterprises. [REDACTED]

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Because local government and party officials are evaluated on the economic performance of enterprises in their regions, they often have compelling incentives to aid and abet some statistical manipulation. To this end local party officials have some opportunity to pressure local prosecutors and statistical administration offices to ignore statistical misrepresentation. Ministries are also evaluated on the performance of their subordinate enterprises and they often will turn a blind eye to statistical manipulation motivated by an attempt to fulfill the output plan. [REDACTED]

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⁶ Gregory Grossman mentions the "dead souls" techniques--payroll padding--in this context. See Soviet Economy in a Time of Change "Notes on the Illegal Private Economy and Corruption." Footnote, p. 842. Joint Economic Committee, 10 October 1979. [REDACTED]

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The Types of Statistical Falsification

Even though managers have incentives to distort statistics, they must be selective. Ministerial and local support for statistical manipulation will vary with the types of statistics falsified and the motivations behind the falsification. [REDACTED]

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Falsifying Outputs

The first type of falsification involves the enterprise manager reporting to his ministry or an oversight body that planned output targets were met when in fact they were not. The manager's objectives would be either to safeguard his own job and/or qualify for plan fulfillment bonuses. Violations of this type carry a 3-year jail term plus the obligation to repay all illegal bonuses that were paid out as a result of false reports. [REDACTED]

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The chances of successfully lying about physical production are often slim. Output certified as produced must be delivered. The customer for undelivered goods can initiate a trace action. Many types of goods, such as tons of steel, or numbers of tractors, are easy for auditors to trace. One enterprise wage-economist reported that no-one at her factory ever lied about finished output since the penalties were too severe and audits of output could easily detect falsification. [REDACTED]

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Even if an enterprise successfully lies about its output in a given year, the next year central authorities could call for it to produce the falsely reported amount plus some additional increment. This "ratchet effect" could force an enterprise

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manager to perpetually lie to fulfill his output plan, with ever mounting likelihood of being found out. [REDACTED]

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Several emigre accounts from the late 1970's indicate that a milder, but still risky form of falsification sometimes has been used. Enterprise managers would certify the output plan for a month or quarter as fulfilled if their products were partially assembled and there was a reasonable chance of finishing the production in the first day or two of the next month. One source thought these changes were minor, but another source had heard that padding might overstate output by ten percentage points in a year. [REDACTED]

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Misreporting by so large an amount as 10 percentage points would greatly increase the chance of eventual detection and cause distress the next year when the plan went up due to the ratchet effect. A safer way for a manager to protect job and bonuses is to renegotiate the plan. A Soviet newspaper reported one enterprise renegotiated the plan 22 times over a two year period. A Soviet survey conducted in the mid-1970s revealed that for 200 Ukrainian enterprises the value of output plan was scaled down an average of approximately 1.6 times per year. [REDACTED]

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Given the above, we conclude that actual falsification of physical output statistics at the enterprise level is probably rare. There are apparently two sectors, however--transportation and agriculture--where distortion of output statistics reported by the field could be more common; the important output indicators in these sectors are harder to verify. [REDACTED]

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A railroad auditor can only prove that weight (and thus ton kilometers) is overstated during a shipment and the auditing effort cannot be concealed by the central authorities. However, central authorities are trying to crack down on transportation over-reporting with more audits and stiffer penalties. Previously, the railroad ministry handed over statistics to the CSA at the national level. The press accounts of "truth varnishing" at 65 to 75 railroad stations investigated by "control organs" last year could indicate a change in the railroad ministry statistical reporting system. If this is the case, then we expect both CSA and CIA statistics on transportation to be more accurate in the future. Additionally, if the control organs successfully lower the share of over-reporting in transportation, measured growth of output will be lower than it would have been, had there been no increase in enforcement activities.

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Agricultural enterprises present similar audit difficulties. Yield per acre is an important indicator for bonuses, but sovkhoses and kolkhoses are generally isolated, large, and crops are scattered. These conditions make it difficult for outside auditors to verify actual acreage planted.

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The press accounts do note that "numerous" falsifiers in transportation and agriculture have been brought to justice (generally by extra departmental investigators) so falsification in these sectors still carries risks. Additionally, the ratchet effect applies to transportation and agriculture as well. Thus

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even in transportation and agriculture falsifying output probably is not the norm.⁷ []

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Given the opportunity, managers are more likely to cheat on quality than quantity. If an industrial enterprise can water the milk or cut the potency of medicine, for example, it can still meet its planned quantity goal with little risk of detection. On the other hand, if it cannot make quality/quantity tradeoffs, and must certify specific quantities produced and delivered, an enterprise probably will certify the actual amount. []

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Of interest was the omission of any mention of machine building enterprises from criticism in Soviet press reports. Machine building enterprises often have heterogeneous outputs valued in rubles. These enterprises typically have some flexibility to change their product mix, to manufacture "new" higher-priced products after minor cosmetic changes, or to prepare higher priced special orders. These advantages could mean they do not have to resort to the riskier types of report padding to gain additional inputs or boost bonuses. []

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In cases where a machine building enterprise does not have sufficient inputs to meet its assortment plan, it still might be able to use the above techniques to fulfill the gross value of output plan, and would deliver higher priced but less useful

⁷ For a fuller discussion of the inaccuracies of Soviet agriculture statistics, see Barbara Severin and Margaret Hughes "An Index of Agricultural Production in the USSR" in USSR: Measures of Economic Growth and Development, Joint Economic Committee, December 8, 1982, pp 261-63. []

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goods to its customers.⁸

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Falsifying Efficiency Indicators

A second category of report distortion includes falsifying the expenses and materials necessary to meet planned production or falsifying non-physical plan fulfillment indices to generate bonuses. Soviet enterprises are often given plans for production which do not correspond to available resources. Managers seek either to generate cash to buy extra inputs, or to generate excess inputs for one good that can be traded for deficit inputs for another good. The manager's goal is to produce the actual plan amount, but he is willing to fiddle with input numbers.

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National authorities would like to eliminate these types of report padding so that they can plan the economy more effectively and accurately. Press articles condemn this type of report padding but rarely give explicit details, probably to keep from handing other potential violators a roadmap. Some methods of distortion have been explicitly cited, however. For example, to increase bonuses, managers can overstate output-capital ratios--a measure of productivity and efficiency--by early writeoffs of capital equipment that in fact remains in use. One coal mine

⁸ This is the problem of hidden inflation in the Soviet machine-building branch of industry. Because machine-building enterprises have some flexibility to vary their output mix or introduce "new" products, output--measured as gross value of output--goes up. This is not an example of enterprise level falsification, however. The distortion occurs because the CSA "deflates" nominal machine-building GVO to "real" GVO using an unrepresentative deflator. The CIA index of machinery output combines numerous physical volume output series with some GVO series. The physical and GVO series have offsetting biases so the CIA index should be relatively unbiased. See Ray Converse, "An Index of Industrial Production in the USSR" in USSR: Measures of Economic Growth and Development, 1950-80, Joint Economic Committee, December 8, 1982.

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director used the same ploy with labor. By transferring (on paper only) some coal miners to ancillary services, the measured labor productivity per remaining miner shot up. Coal production stayed flat but bonuses increased. [REDACTED]

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This type of data manipulation carries only moderate risk. Since real output has been produced (and presumably delivered) there will be no irate customers who will initiate an investigation. Additionally, once an enterprise manager has fulfilled the output plan, regional officials and ministerial superiors will all too often show a "localist" or "narrow-departmental" tendency to protect a successful manager from outside auditors. [REDACTED]

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Falsification to Conceal Theft

A final category of enterprise report padding attempts to conceal theft, corruption, and illegal production. (Soviet press accounts stress that the slightest step on the road of report padding leads inevitably to these high crimes.) In the previous two categories of falsification, managers padded reports either 1) to hide plan non-fulfillment, 2) to achieve the plan output in an unplanned way, or 3) to earn bonuses for themselves and/or their critical workers. In this category, report padding is used to conceal crimes already committed. Soviet legality makes this distinction as well. Managers who under-report output so that they can sell the rest--or overstate input requirements so they can manufacture other goods--for personal profit often receive extremely harsh penalties. For example, in Georgia a manager of an experimental light industry association, who sold 1.8 million

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rubles of goods for personal profit, was shot. On the other hand a collective farm chairman who was involved in "non-standard" financial arrangements while contracting for much needed roads in his district served only a year of a longer sentence before his successful appeal. []

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How Report Padding Affects CIA Measures of the Soviet Economy

The CIA measures the size and growth of the Soviet economy using synthetic value-added series.⁹ Very few of these over-reporting devices will change our measures of the size or growth of the Soviet economy, especially if physical output series are essentially unaltered. Additionally, our measures of growth will be in error only if the share of statistical falsification of output increases or decreases over time. []

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- o The first type of report padding--certifying production of non-existent goods--potentially has the most impact on both Soviet National Income and our GNP accounts--but is the least likely to occur. []

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- o Although output falsification in transportation and agriculture can cause problems for our transportation and agricultural indexes, it is only a problem in measuring growth if the amount of falsification changes substantially over time. []

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Two activities were mentioned in press accounts which could

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Our synthetic Soviet GNP accounts are based on estimates of ruble value-added by sector in 1970. For each sector these values (weights) are then moved by indexes of output which are based mostly on physical units. Aggregating the individual sectors provides annual estimates of Soviet GNP in 1970 prices. []

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bias both CSA and CIA measures of Soviet capital stock and capital productivity.¹⁰ Buildings are sometimes commissioned before they are actually finished--because builders cannot legally collect bonuses before construction is completed, thus artificially increasing the measures of capital stock and decreasing capital productivity. In one case, capital equipment was reported as being retired, but was kept in use, making the remaining capital appear more productive. These two activities have offsetting effects on measuring capital productivity. Early commissioning probably is not widespread because irate users of the uncompleted building are likely to seek justice--possibly through letters to national level press or investigative organs. Even so, early commissioning could be more common than early retirement because the overall rate of Soviet capital retirement is so low that it is difficult to imagine the early retirement gambit was more than an isolated incident.

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- o The second type of report padding--manipulating efficiency indicators--seems common, but has little impact on our measure of the Soviet economy, which is largely derived from physical output series.

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¹⁰ The CIA uses unmodified Soviet gross fixed capital stock data in lieu of any data better. These data value capital at installed "comparable prices" and do not include depreciation. Defining capital this way overstates the real stock of capital and understates capital productivity. However, the measured growth rates of capital and changes in capital productivity will differ much less from their unmeasured "real" counterparts, as long as both investment and depreciation rates remain fairly stable. The measurement problems caused by the definition of Soviet capital greatly overshadow any errors in measurement caused by enterprises trying to report false capital data.

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- o Many types of enterprise labor data manipulation tend to wash out because our GNP accounts operate at a high level of aggregation. However, for a smaller sector, such as construction, which employs significant amounts of seasonal workers, both we and the Soviets may mismeasure year-to-year changes in productivity.

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- o Cases where a manager trades scarce material inputs with another factory so that both can fulfill the plan will not affect our measure of Soviet production, since we will measure the output of both plants. The fact that specific inputs were not as reported will seldom distort our calculations.

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- o We are interested in the relationship of the cost and quantities of material inputs to outputs only when we are examining the input-output structure of the Soviet economy. Cutbacks in published Soviet data permit us to work with only 13-16 sector input-output tables at this time and it is unlikely that enterprise level input misreporting will distort seriously this level of aggregation.

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- o Cases of theft and massive fraud disturb Soviet central authorities, but have a lesser and possible minor significance on GNP estimates. Take the case where a local party official convinces a construction trust to build a lakeside dacha instead of a workers' dormitory of equal cost. Either one would be

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considered investment in housing, so our total

estimate for investment would be unchanged.

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- o Some distortion of inputs can affect our measures of GNP, however. For example, a processed food enterprise may use some of its state-supplied inputs to produce goods for the black market and at the same time manage to meet its quantitative output plan by diluting the product. Our estimate of Soviet GNP will not include that output destined for the black market and will over value the reported legal production (because we assume constant quality). These errors have possibly completely offsetting effects and will distort our estimates only if the share of the net distortion changes overtime.

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Appendix: The Ericson Hypothesis

Professor Richard Ericson of Columbia University proposed the following hypothesis, that because the number of transactions required to support growth grows approximately as the square of economic activity, if there is an upward bias in reporting of micro level economic activity, the upward bias of macro level economic activity will grow at least as the square of economic growth. This causes measured growth to be systematically exaggerated and makes central planning more complex. The net result of these two effects is to slow real growth but to increase reported growth.

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Historically, both the CIA and the official Soviet measures of economic growth have shown a general twenty-five-year long pattern of decreasing rates of growth--confirming only one of Ericson's predictions. This, however, is what one would expect if there is a tendency to over-report indicators of efficiency but to report actual output. The bias in indicators of efficiency would increase the problems of the central planners--expected rates of growth would slow. The lack of output bias would, though, permit both the CIA and the CSA to measure the slowdown accurately.

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